REMARKS

In response to the final Office Action dated June 18, 2007, claims 1, 13, 18, 29, and 31 have been amended and claims 11, 12, 28 and 30 have been canceled. Therefore, claims 1-10, 13-23, 25-27, 29, and 31-34 are now in the case. The Applicants respectfully request that this amendment be entered under 37 C.F.R. 1.116 to place the above-referenced application in condition for allowance or, alternatively, in better condition for appeal. In light of the amendments and arguments set forth herein, reexamination and reconsideration of the application are requested.

Section 103(a) Rejections

The Office Action rejected claims 1-23 and 25-34 under 35 U.S.C. § 103(a) as being unpatentable over a paper by Michael H. Bianchi entitled "A Fully Automatic Multi-Camera System to Televise Auditorium Presentations" in view of a paper by Li-wei He et al. entitled "The Virtual Cinematographer: A Paradigm for Automatic Real-Time Camera Control and Directing". More specifically, the Office Action maintained that the combination of Bianchi and He et al. discloses each and every feature of the Applicants' invention, either explicitly or implicitly.

In response, the Applicants respectfully traverse these rejections. In general, the Applicants submit that the combination of Bianchi and He et al. is lacking at least one element of the Applicants' claimed invention. More specifically, the combination does not disclose, either explicitly or implicitly, the material claimed feature of a history-based, reduced-motion tracker that controls the lecturer-tracking camera in tracking the lecturer based on a history of the lecturer's movement. Further, Bianchi and He et al. fail to appreciate the advantages of this claimed feature. In addition, there is no technical suggestion or motivation disclosed in either Bianchi or He et al. to define this claimed feature. Thus, the Applicants submit that the combination of Bianchi and He et al. cannot make obvious the Applicants' claimed features listed above.

To make a prima facie showing of obviousness, all of the claimed features of an Applicant's invention must be considered, especially when they are missing from the prior

art. If a claimed feature is not disclosed in the prior art and has advantages not appreciated by the prior art, then no prima facie showing of obviousness has been made. The Federal Circuit Court has held that it was an error not to distinguish claims over a combination of prior art references where a material limitation in the claimed system and its purpose was not taught therein. *In re Fine,* 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Moreover, as stated in the MPEP, if a prior art reference does not disclose, suggest or provide any motivation for at least one claimed feature of an Applicants' invention, then a prima facie case of obviousness has not been established (MPEP § 2142).

Amended Independent Claims 1, 18, and 31

Amended independent claim 1 of the Applicants' claimed invention includes an automated video production system for online publishing of a lecture. The system includes a camera system that provides multiple camera views of the lecture in a real-world lecture environment. The camera system includes a lecturer-tracking camera that provides a camera view of a lecturer. The system further includes a history-based, reduced-motion tracker that controls the lecturer-tracking camera in tracking the lecturer based on a history of the lecturer's movement, a virtual director that uses probabilistic rules to select a current camera view from the multiple camera views and is capable of changing the current camera view by switching between the multiple camera views in response to a triggering event, and a set of expert video production rules that is applied by the virtual director to select the current camera view.

Amended independent claim 18 of the Applicants' claimed invention includes a method for automatically producing a video of a lecture for online publishing. The method includes providing a set of expert video production rules, and capturing the lecture in a real-world lecture environment using a camera system that includes multiple camera views. The camera system includes a lecturer-tracking camera. The method also includes tracking the lecturer based on a history of the lecturer's movement using a history-based, reduced-motion tracker, and using the set of expert video production rules to determine a current camera view from the multiple camera views, when the current

camera view should change, and to which of the multiple camera views the current camera view should change based on a probabilistic approach that uses a probabilistic transition matrix constricted by the expert video production rules such that a next current camera view is a weighted random choice.

Amended independent claim 31 of the Applicants' claimed invention includes an automated video production system for capturing images of a real-world scene. The system includes an audience-tracking camera that provides images of an audience within the real-world scene, a lecturer-tracking camera that non-intrusively tracks a lecturer within the real-world scene, and based on a history of the lecturer's movement. The system further includes a set of expert video production rules containing video production constraints, and a virtual director module that receives multiple camera views from the audience-tracking camera and the lecturer-tracking camera and use the set of expert video production rules and probabilistic rules to select a current camera view from the multiple camera views in a real-world environment such that the current camera view is a weighted random choice.

The automated video production system and method includes a history-based, reduced-motion tracker that controls the lecturer-tracking camera in tracking the lecturer based on a history of the lecturer's movement. "This tracker tracks a subject and sets a camera shot (zoom and pan) using the subject's movement history. Once the camera view is determined and set, it is fixed to reduce any distracting and unnecessary camera movements" (specification, paragraph [0015], lines 10-13).

In other words, the "tracker 630 operates by zooming in or out on a subject (such as a lecturer or audience member) depending on the *history of the subject's movement*. For example, if a lecturer has a history of frequently changing locations the tracker 630 takes this into account and sets an appropriate camera zoom to capture the lecturer. Once the camera zoom is set the tracker 630 generally does not move the camera (either to the left and right or zoom in and zoom out) but remains fixed. Thus, *based on the history of movement of the subject*, the tracker 630 sets up a camera view and remains

fixed until the subject moves out of camera view" (specification, paragraph [0113], lines 2-8; emphasis added).

In contrast, the combination of Bianchi and He et al. merely discloses a tracking camera that sets a pan, tilt and zoom based on current movement. In particular, Bianchi discloses "Tracking Camera software [that] detects any motion in the Search Area and drives the Tracking Camera to the appropriate pan, tilt, and zoom position" (Bianchi, page 3, lines 1-3). The software looks for current motion in the Search Area, and not a history of a subject's movements. For example, if a person is standing near the screen when a slides changes the Tracking Camera will zoom out to include both the screen and the slide in the shot (Bianchi, page 3, second full paragraph, lines 5-8). Once again, the change in the camera zoom is based on current movement of a subject.

He et al. add nothing to the cited combination that would render the Applicants' claimed invention obvious. In particular, He nowhere discuss a history-based, reduced-motion tracker that controls the lecturer-tracking camera in tracking the lecturer based on a history of the lecturer's movement. This is because the system in He et al. does not track lecturer since it is set in a virtual world.

Consequently, no motivation or suggestion for the claimed feature of the Applicants' invention is provided. Absent this teaching, motivation or suggestion, the combination of Bianchi and He et al. cannot render the Applicants' claimed invention obvious (MPEP § 2143.01).

The combination fails to appreciate or recognize the advantages of the Applicants' claimed feature of a history-based, reduced-motion tracker that controls the lecturer-tracking camera in tracking the lecturer based on a history of the lecturer's movement. More specifically, "[T]he history-based, reduced-motion lecturer tracker 630 of the present invention ensures that the lecturer-tracking camera 130 is not continually zooming in or out or panning left and right and thus reduces distractions to the viewer"

(specification, paragraph [0113], lines 9-12). Neither Bianchi nor He et al. discuss or appreciate these advantages of the Applicants' claimed feature.

The Applicants, therefore, submit that obviousness cannot be established since the combination of Bianchi and He et al. fails to teach, disclose, suggest or provide any motivation for the Applicants' material claimed feature of a history-based, reduced-motion tracker that controls the lecturer-tracking camera in tracking the lecturer based on a history of the lecturer's movement. In addition to explicitly lacking this feature, the combination of Bianchi and He et al. also fails to implicitly disclose, suggest, or provide explicit or implicit motivation for this feature. Further, the combination of Bianchi and He et al. fails to appreciate advantages of this claimed feature.

Therefore, as set forth in *In re Fine* and MPEP § 2142, the combination of Bianchi and He et al. does not render the Applicants' claimed invention obvious because the references are missing at least one material feature of the Applicants' claimed invention. Consequently, because a prima facie case of obviousness cannot be established due to the lack of "some teaching, suggestion, or incentive supporting the combination", the rejection must be withdrawn. ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984); MPEP 2143.01.

Accordingly, the Applicants respectfully submit that amended independent claims 1, 18, and 31 are patentable under 35 U.S.C. § 103(a) over Bianchi in view of He et al. based on the amendments to claims 1, 18, and 31 and the legal and technical arguments set forth above and below. Moreover, claims 2-10, and 13-17 depend from amended independent claim 1, claims 19-23, 25-27, and 29 depend from amended independent claim 18, and claims 32-34 depend from amended independent claim 31 and are also nonobvious over Bianchi in view of He et al. (MPEP § 2143.03). The Applicants, therefore, respectfully request reexamination, reconsideration and withdrawal of the rejection of claims 1-23 and 25-34.

Conclusion

Because the Applicants' claimed invention includes features neither taught, disclosed nor suggested by the art cited in the Office Action, the Applicants respectfully submit that the rejections of claims 1-23 and 25-34 has been overcome.

The Applicants, therefore, submit that claims 1-10, 13-23, 25-27, 29, and 31-34 of the subject application are in condition for immediate allowance. The Examiner, therefore, is respectfully requested to withdraw the outstanding rejections of the claims and to pass all of the claims of this application to issue.

In an effort to expedite and further the prosecution of the subject application, the Applicants kindly invite the Examiner to telephone the Applicants' attorney at (805) 278-8855 if the Examiner has any comments, questions or concerns, wishes to discuss any aspect of the prosecution of this application, or desires any degree of clarification of this response.

Respectfully submitted,
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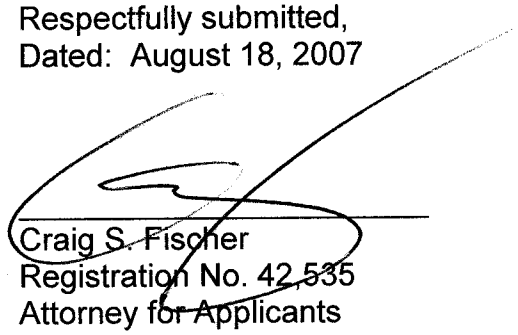

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